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(54) **RETRACTOR SYSTEMS WITH CLOSED LOOP CONTROL**

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See application file for complete search history.

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(57) **ABSTRACT**

A retractor system with a closed loop control includes a retractor having one or more sensors, which measure parameters associated with a retracted tissue. The system further includes a positioning mechanism connected to the retractor and a controller which receives feedback signals from the sensors. Based on the feedback signals from the sensors, the retractor is actuated by the positioning mechanism so that the tissue can be retracted while maintaining the parameters associated with the retracted tissue above a threshold level or within a desired range. Another retractor system includes a retractor with a force sensor and at least one additional sensor, which can be used without a closed loop control arrangement.

27 Claims, 17 Drawing Sheets

